Reg. No.										

MANIPAL INSTITUTE OF TECHNOLOGY

(A Constituent Institute of MAHE – Deemed University)
Manipal – 576 104

FIFTH SEMESTER B.E. DEGREE MAKE UP EXAMINATIONS – JANUARY 2007

SUBJECT: MICROPROCESSORS (BME 307)

(REVISED CREDIT SYSTEM)

Wednesday January10, 2007 2 p.m. to 5 p.m.

TIME: 3 HOURS **MAX. MARKS: 100**

Instructions to Candidates

1. **Answer any FIVE full questions.**
2. **Draw labeled diagram wherever necessary**

1. (a) With the help of necessary diagram explain the programming model of Intel 8085 microprocessor. Give significance of each resource. 10

   (b) Distinguish between Instruction cycle, Machine cycle and T- states. 04

   (c) With an example each explain the following addressing modes used in the 8085 microprocessor.
   - i. Direct addressing mode
   - ii. Immediate addressing mode
   - iii. Register indirect addressing mode 06

2. (a) Draw and explain clearly the various waveforms and states involved in the Opcode fetch machine cycle of the 8085 microprocessor. 06

   (b) Draw the timing diagram for the following instruction
   - i. LDA 22FFH
   - ii. MVI, 00H 07+07

3. (a) Write single 8085 instructions equivalent to the following 8085 instruction sequences.

(i) PUSH D	(ii) PUSH B	(iii) PUSH PSW	(iii) LXI H,0000
XTHL	MOV B,H	XRA A	DAD SP
POP D	MOV C,L	ADC C	MOV E,M
	LDAX B	MOV C,A	INX H
	POP B	POP PSW	MOV D,M
			INX H
			SPHL

2X4=8

   (b) With relevant illustrations explain the following instructions
   (i) CALL 16 bit address (ii) RET 06+06

4. (a) Hundred 8-bit numbers are available in a memory array starting at 8C00H. Separate them into even and odd elements. Store the odd elements from 8D00H and even elements from 8E00H. Give the algorithm 10

   (b) Interface one 8 K bytes EPROM and two 8 K bytes static RAM to the 8085. Give memory map and the logic diagram. 10

5. (a) What are the pins associated with the interrupt operation in the 8085 microprocessor? Describe the way in which each pin operates. What is the order of priority assigned to the different interrupts of 8085? 08

   (b) Distinguish between memory mapped I/O and I/O mapped I/O. 04

   (c) Describe briefly the programmable peripheral interfacing device. 08

6. (a) Describe DMA controller device 08

   (b) Explain the following interfacing devices

      (i) Intel 74LS245

      (ii) Intel 74LS148 04+04

   (c) Draw a labeled programming model of INTEL 8051 microcontroller. 04